LSR GUI:
Local Storm Report
Graphical User Interface

Guide for Users

VERSION OB2

June 12, 2003

Tom Filiaggi
Decision Assistance Branch - HydroMet Monitoring
NWS - MDL

Table of Contents

Introduction

The Local Storm Report (LSR) Graphical User Interface (GUI) is a stand-alone AWIPS application designed to provide forecasters with an easy and quick way to create, manage, and send the LSR public text product. This text product contains noteworthy weather events for which the forecaster has either received or sought out real-time observations.

NOTE: The format of the LSR text product will be changing in December, 2003. This LSR GUI will provide the old LSR event format until the time of the transition is encountered. You do not have to worry about which format to use! See Appendix A for the new event format and an example LSR product in its new format.

Running the LSR GUI

Currently, the LSR GUI is accessible via the desktop menu. You can also run it from the command line, but you must know how to open a terminal session and set your environment correctly.

The LSR GUI Basics

When the LSR GUI starts, it loads various initialization data and will present a small Loading Window. This window will inform you what the LSR GUI is doing to prepare for the session.

During this loading phase, various data is being ingested.

- City data: The first time the LSR GUI is started, it will read the **/awips/fxa/data/CitiesInfo.txt** and **/awips/fxa/data/localizationDataSets/@@@/LocalCitiesInfo.txt** files and create a **/data/fxa/tstorm/LSRcities.txt** file. Upon subsequent loads, only the LSRcities.txt file will be read. If either the CitiesInfo.txt or the LocalCitiesInfo.txt files are changed after the LSR GUI has first loaded, there is a button on the Configuration page of the GUI that allows you to re-construct the LSRcities.txt file. (See the Tabs: Configurations section below.) (Note: @@@ = the three-letter WFO identifier.)

- Spotter data: When searching for the spotters.dat text file, the LSR GUI will first look in the **/data/fxa/customFiles** directory, then in the **/awips/fxa/data/localization/nationalData** directory. When this file gets re-written (see the Spotter Tab section below), a copy will be placed in both of these locations.

- LSR inventory: The LSR Informix data base (not the textdb data base) will be read to acquire an inventory of saved and transmitted LSRs. This also purges LSRs from the data base that are older than 90 days.

- You will be asked for your identity. You may either enter your name or initials, whatever you would like to appear in the LSR text product itself. The identity of the user who launched the LSR GUI will be visible just next to the Practice toggle in the upper right corner of the GUI (see the Top Section below). This will not change throughout the session. The Name entry in the "Create / Edit Event" page (see the Create / Edit Event tab section below) will start off with this same identity, but may change either by user input or by whatever was saved with a specific event, then retrieved for editing.

Once the initialization is complete (this takes only a handful of seconds), the LSR GUI will appear. There are 3 sections to the GUI: Top, Tab, and Bottom sections. The Tab section, in turn, consists of several tabs or pages. All three sections and the various tabs are described in detail below.

The LSR GUI Basic Sections:

The Top Section

Exit Button
Left-clicking the "Exit"Button will close the LSR GUI and shut the process down. You may also do this by closing the window using the window frame.

Practice Toggle
Left-clicking the "Practice" selection toggles the LSR practice mode on/off.
While in practice mode:

- The appearance of the GUI will change to signify that the practice mode is active.
- Any events created will be internally flagged as practice by the software and will not be included in any *non-practice* operations. (See various other descriptions below.)
- Any official LSRs saved or transmitted by the GUI will be flagged as practice LSRs by the software, will be noted as such in the header text, and **will not actually be transmitted**, but only saved to the AWIPS textdb data base.

The Bottom Section

Status Bar
The Status Bar informs you when something significant has happened. When a new message appears in the Status Bar, it will blink for about one second. Left clicking on the arrow or anywhere in the yellow message portion of the status bar will expand or contract the messages so you can view up to ten messages into the past. (See Figure 7.)

Messages that appear in the Status Bar are usually confirmations of successful operations (ie: event saved, LSR transmitted, etc) but may also contain some error information. Most error information will be presented in a separate pop-up window.

Exit Button
Left-clicking this second "Exit"Button will close the LSR GUI and shut the process down. (This is the same as the Exit button in the Top Section.).

The Tab Section

Create / Edit Event
(See Figures 1 and 2.)

General Tips

- Keyboard Navigation — You can use the Tab key to move from one widget to the next or use the Cntrl-Tab keys to move from one widget to the previous. You can use the space bar to 'select' the widget that currently has the focus. The arrow keys will move up and down in a given list box. This keyboard navigation has been implemented for all but the Configurations tab.

- List defaults — You can set session defaults for any list by right-clicking on the list element you want to be the default. When the page is cleared (see below), the list will revert to the default selection. These defaults will be reset for each new LSR GUI session and not saved from session to session.

- Size Restrictions — Some entry widgets have character length restrictions. If the limit is exceeded, the widget will blink and beep once and the character last typed will be omitted.

Left-clicking the "Create / Edit Event" tab raises the portion of the LSR GUI that handles event data entry and editing. On this page there are four sub-sections, each with various widgets:

- Basics
  - Date — The 'Date' widgets consist of separate entry widgets for month, day, and year, in the format *mm/dd/yyyy*.
  - Time — The 'Time' widgets consist of separate entry widgets for hour and minute in the format *hh/mm*.
  - Meridian — The Meridian section tells you what the time zone of your

WFO is and allows you to choose between AM, PM, and a 24-hour clock time. Note that the time zone displayed by this menu button is the time zone of the WFO, **not the event**, and will not change (except for daylight savings)!

- Set Current Time — Left-clicking the "Set Current Time" button will fill all of the above time widgets with the proper information for the current system time. If AM or PM is chosen, a 12-hour time will be chosen, with the correct meridian.

- Initials — Provides an entry widget to enter either your name or your initials. This value will be saved with the rest of the event data, but the identity that will be added to the text of the LSR product itself will be the identity entered upon start-up. It is possible for an event to have been saved by one user, then saved/transmitted later by another user.

- Source — Provides a listbox of accepted sources for any LSR event. Left-click the arrow to get the list and left-click the item in the list you wish to select. If the cursor moves out of the list, the list will disappear. See Appendix B for a list of currently accepted sources.
  NOTE: If the "TRAINED SPOTTER" source is chosen, an additional widget will appear which allows for a spotter name to be typed in. The search method for spotters is the same as the search method described below for cities - as text is typed, a best match will be found and displayed, if possible. When a match is found the software will attempt to fill in the entire "Location" section below with the spotter's location information. Currently, this method is only implemented for spotters, but may be implemented for other statically located sources in the future, such as buoys.

➲ Location of Event

- Reference City — As you type in a city name, the software will convert the letter to upper case if needed and retrieve its first guess. Once your desired city appears in the text, you do not need to enter any more text. Once a city appears in the text (after your first typed character) you may use the up and down keys on the keyboard to move up and down the city list in memory. The next or previous city in that list will appear on screen. If there exists more than one city in the list with the same name (but different state), you will see the words

"Duplicate City Name" appear above the entry. To access other cities of the same name, use the up and down keys as described above.

- Direction from City — Contains a list of 16 standard cardinal directions as well as a "NONE" selection. Access the list by left-clicking the arrow button.
  NOTE: You can choose a direction without a distance to refer to a section of a large city, but you cannot enter a distance without a direction.

- Distance from City — This is an entry widget for entering the number of miles the event is from the city referenced. If the direction is "NONE", then a non-zero numeric value is not allowed here.
  NOTE: As direction and distance are changed, the county and state may change. **The county and state will always describe the location of the event - not the location of the reference city.** If the event did not occur in a county, then the city and county will contains "X"s.

- Lat/Lon Entry — Left-clicking on the "Lat/Lon Entry" button will reveal an entry widget for providing the latitude and longitude of an event, if such is known. The LSR GUI will fill in the other location values based on the lat/lon values provided. While this option is active, the other location entry widgets will become inactive. This means that either the standard method or the lat/lon method of event location entry can be used, but not both at the same time. See Figure 2.

- *County of event* — *Automatically determined by the location of the event based on the reference city, direction, and distance or the lat/lon entry.*

- *State of event* — *Automatically determined by the location of the event based on the reference city, direction, and distance or the lat/lon entry.*

➲ EventInfo

- Weather Event — Provides a listbox of accepted weather events. Left-click the arrow to get the list and left-click the item in the list you wish to select. If the cursor moves out of the list, the list will disappear. See Appendix C for a list of currently

accepted weather events.

- ▸ Magnitude — If the event chosen requires a magnitude, several widgets will appear below and to the side of the Weather Event widget. These new widgets handle accuracy, units, and values.
  - The Accuracy section contains 3 selectable radiobuttons: “Estimated”, “Measured”, “Unknown”. Although the accuracy information does not appear in the LSR text product itself, it is stored with the rest of the weather event information and is retrievable. (See the Event Log page.)
  - The Units widget tells you what the units of the magnitude value are.
  - If the event has a pre-defined list of possible values (such as HAIL or TORNADO), the value selection widget will be a listbox of those values, which behaves just like the listboxes for event types and sources. If there is no pre-defined values list, this value selection widget will be a simple entry widget.
    NOTE: An unknown F-scale magnitude for tornadoes of “FX” is no longer used.

- ▸ Remarks — Add your text comments in this section. The words will wrap to accommodate the 69 character limit of NWS text products. Don’t worry about case - all text will be converted to upper case when necessary. For QC purposes, any tab, end-of-line or double space characters entered will be removed by the software.

- ▸ Fatalities — A simple entry widget to enter the number of fatalities associated with the weather event.

- ▸ Injuries — A simple entry widget to enter the number of injuries associated with the weather event.

➲ Actions

- ▸ Save Event — Left-clicking the “Save Event” button will save the data entered in the Basics, Location, and EventInfo sub-sections into the LSR data base (not the textdb database). Such saved events can be retrieved for review, preview, transmission, and editing via the Event Log page (see

below). All entered values are checked before saving. If a widget contains an unacceptable value, an error message will appear. Click the "OK" in the error message box and fix the value that was noted.

- ▸ Save & Preview — Left-clicking the "Save Event and Preview for Transmission" button will produce the Preview window (see below), from which you can transmit the official LSR text product. In this case, the previewed LSR will only contain the one event just entered.

- ▸ Clear — Left-clicking the "Clear Event info" button will clear all widgets and return the time widgets back to the last saved event time. If you want the time to update, just left-click the 'Set Current Time' button.

REMEMBER:
- The widgets on the "Create / Edit Event" page behaves the same, whether the practice toggle is on or off.
- Successful save messages will be shown in the Status Bar.
- All event values are quality controlled just before saving. Some values may get automatically updated as you enter event data, depending on where the cursor is, such as the time widgets and the county and state.

Event Log
(See Figure 3.)

Left-clicking the "Event Log" tab raises the portion of the LSR GUI that handles retrieving weather events into a listed form ranked from most recent to oldest. This event list, or log, allows you to edit previously saved events and to transmit an LSR with more than one event. On this page there are three sections:

➲ Search By

- ▸ Time Duration — If you want to see all of the weather events in the LSR data base (not textdb data base) from the current time back into the past a number of hours, enter that number of hours in the entry widget provided.

- ▸ Time Range — If you want to see all of the weather events in the LSR data base (not textdb data base) for a certain time range, enter the time range in the widgets provided. Make sure that the format of what you enter is correct (*mm/dd/yy* and *hh:mm*). If the format is not correct, you will not get any events in your list.

- LSR — If you want to see a list of events that are associated to a previously saved or transmitted LSR product, left-click this selection. This provides a list of the LSRs saved in the LSR data base (not the textdb data base). The LSRs are listed by time of save/update or transmit, like an inventory. This listbox behaves like other listboxes in the LSR GUI.

- Fetch Events — Left-click this button when you want to retrieve the weather events and display them on the screen, based on the criteria you entered in the widgets above. This will fill the event list (below) with formatted events for the given criteria. **NOTE**: If you fetch according to LSR, you will see the words "Active LSR" appear below the 'Practice' toggle. This is intended to remind you that the software thinks you are managing a specific LSR. If you try to save the LSR when the "Active LSR" is visible, you will be overwriting the Active LSR, not creating a new LSR. To get rid of the "Active LSR", just click the Clear button (see below).

➲ Event List

- Event List — The event list (or event log) can be used to edit, delete, and transmit LSR events. The text of the event will have a color-coded background (see the Legend section below).
  - **Delete:** To delete an event from memory and the LSR data base (not the textdb data base), left-click on the "Delete" button for the event to be deleted.
  - **Edit:** To edit an event, left-click the "Edit" button for the event to be edited. This will send all of the event information to the "Create / Edit Event" page where you can edit the items as you see fit. When you successfully save an edited event, you will be brought back to the Event Log page.
    NOTE: You are not allowed to 'Save and Preview' while Editing an event. If you try this, the event will be saved, but you will just go back to the Event Log page and a text pop-up will inform you of the situation.
  - **Select:** You Can select and de-select individual events by left-clicking on the event text itself. For those events selected, you can either print or transmit them (see below).
- (De)Select All — You can select or de-select all events in your log by left-

clicking this button. You can select or de-select all events that have **not yet been transmitted and that have been edited after transmission** by **right**-clicking this button.

- Action & Legend
  - Preview — Left-clicking the "Preview Selected Events for Transmission" button will produce the Preview window (see below) with the selected events in it, from which you can transmit the official LSR text product.
  - Clear — Left-clicking the "Clear Display" button will clear the event log of events and set any fetch parameters entered in the widgets at the top of the page back to default values.
  - Print All — Left-clicking this button will send all of the listed formatted events to the default printer. **NOTE**: An interim, transient file is used for this and is called **/tmp/lsrEvents.print**.
  - Print Selected — Left-clicking this button will send all of the selected formatted events to the default printer. **NOTE**: An interim, transient file is used for this and is called **/tmp/lsrEvents.print**.
  - Color Legend — The background of the text of each event in the event log will be color coded according to its status.
    - grey — The event has been saved to the data base, but not yet transmitted.
    - white — The event has been selected.
    - light blue — The event has already been transmitted in an official LSR.
    - light yellow — The event has already been transmitted in an official LSR, but has been edited since that transmission and has yet to be re-transmitted in a corrective LSR.

Spotter

(See Figure 4.)

The Spotter page can be used to manage your spotter location records. This portion of the LSR GUI reads and writes the spotters.dat file, which is already in use by AWIPS and the D2D and can re-construct the spotters.nc file, which is required for the D2D to display the spotter records correctly. There are two main sections to this page.

- Add Spotter — There are seven entry widgets for the location information for the a new spotter. All values are accepted by these widgets, except latitude and longitude, that are constrained to within +/- 90 and +/- 180 respectively.
  NOTE: For the western hemisphere, longitudes are negative. If a positive longitude is entered, you will be asked to confirm the intent of using the eastern hemisphere.

- Recall Spotter
  - Search by ID — To find a spotter record by its ID, enter the spotter's identifier here. The search mechanism here is the same as for the City and Spotter search on the "Create / Edit Event" page.
  - Search by Name — To find a spotter record by its name, enter the name here. The search mechanism here is the same as for the City and Spotter search on the "Create / Edit Event" page. **If** your convention is to use "*Last, First*", then what you enter must be "*Last, First*". Once a match is found, the remaining widgets will be filled with data.
  - Search by Phone # — To find a spotter record by its phone number, enter the spotter's phone number here. The search mechanism here is the same as for the City and Spotter search on the "Create / Edit Event" page. **If** your convention is to use area codes, parentheses, and/r dashes, then what you enter must contain those characters. Once a match is found, the remaining widgets will be filled with data.
  - Remove — Left-clicking the "Remove" button will remove the matched spotter record from memory and the spotters.dat file. You will be asked to confirm.
  - Save — Left-clicking the "Save Edition" button will replace the matched spotter record in memory and in the spotters.dat file with a spotter record with the new, updated data. You will be asked to confirm. This will write this spotters.dat file in both locations - the **/data/fxa/customFiles** and **/awips/fxa/data/localization/nationalData** directories.
  - Clear — Left-clicking the "Clear" button will clear the widgets.

NOTE: Upon saving a new spotter record, editing an existing spotter record, or deleting a

spotter record, you will be asked whether you want the spotters.dat file to be re-written. If you choose 'no', then only the list in memory will be affected. You will want to choose 'no' if you intend to enter many spotter records in the same LSR GUI session. **NOTE**: Both the Add and Recall sections have an "Update Spotter Display Data" button. When left-clicked, this button will re-construct the spotters.nc file for all identified workstations! This may take a number of seconds. If you wish the D2D spotter displays to be updated, you must stop and re-start the D2D after the LSR GUI has updated the spotter display data.

Configurations
(See Figure 5.)

This page allows you to change some of the foundation and configuration of the LSR GUI. Currently, there are two main functions that exist on this page:

- Construct City List — When you left-click the "Construct City" button, the city list the LSR GUI uses gets re-created. The cities in the **/awips/fxa/data/CitiesInfo.txt** and **/awips/fxa/data/localizationDataSets/@@@/LocalCitiesInfo.txt** files will be re-ingested and the LSRcities.txt file will be re-created. This may take a few seconds. (Note: @@@ = the three-letter WFO identifier.)

- Trim Lists
  - Trim Event List — Select any of the items that appear in the list by left-clicking the item. Left-clicking an already selected item will deselect it. Left-clicking the button below the list will trim the event list you see on the Create/Edit page, thus removing unwanted events (i.e. marine events for a land-locked CWA).
  - Trim Source List — Select any of the items that appear in the list by left-clicking the item. Left-clicking an already selected item will deselect it. Left-clicking the button below the list will trim the source list you see on the Create/Edit page.

The Preview Window
(See Figure 6.)

Correction
If one or more of the events listed in the Preview Window have previously been transmitted, you will see a pop-up window informing you that the LSR you are previewing has the word ". . . CORRECTION" in the header, and thus is a Correction LSR (as opposed to a normal LSR).

NOTE: If the Practice toggle is on, the word "TEST . . ." will appear in the header text of the LSR.

LSR Text
What appears in this text window will be *exactly* what is transmitted, *except* for the transmission information in the header (CCCNNNXXX AAA and TTAAii lines), which will be added upon transmission.

Action Buttons

- Save — Left-clicking the "Save, but Do Not Transmit" button will save the LSR to the LSR data base (not the textdb data base) and close the preview window. If this LSR has been saved previously, it will be overwritten.
  NOTE: When the LSR is saved, you will see the words "**Active LSR**" below the Practice toggle. This behaves as discussed above in the Event Log: Fetch Events section.

- Transmit — Left-clicking the "Save & Transmit" button will save the official LSR product (as above) and transmit it. If the GUI is in Practice mode, 'transmission' means the LSR product will only be saved to the textdb. If not in Practice mode, it means it will be saved to the textdb **and** transmitted over the WAN. Also, when a product is transmitted, whether in practice mode or not, abbreviated event data will be saved to an hourly, time-stamped netCDF file for display in the D2D. The LSR menu selection on the D2D is under the Surface menu and it contains several menu selections, one of which is called "Office".

- Print — Left-clicking the "Print" button will send the formatted LSR as it appears in this preview window to the default printer. **NOTE**: An interim, transient file is used for this and is called **/tmp/lsrPreview.print**.

- Add Free Text — The new format of the LSR product allows for a free text segment, which has no set format. Any characters allowed in an official NWS text product can appear below the "&&" line. To add or edit the free text, left-click the "Add/Edit

Free Text" button. This will cause the preview window to be extended, providing you with a text entry widget and an "OK" or "Cancel" button combination. Left-click the "OK" button to accept the text as free text. Left-click the "Cancel" button to cancel any *changes* made in the text entry widget. To remove free text completely, you must edit it and remove it with the delete keys on the keyboard. **NOTE:** The old LSR format does not allow for a free text section. The GUI will still allow you to enter free text and will store it in the data base, but this free text will not be transmitted or be visible in the Preview window.

➲ Close — Left-clicking the "Close:Do NOT Save or Transmit" button will simply close the Preview window without saving or transmitting the LSR product.

What's New in OB2?

- ☞ You can now enter a location by its latitude and longitude on the Create/Edit page.
- ☞ The Status message at the bottom of the window now allows you to view up to the past ten status messages.
- ☞ Events that have been related to a saved LSR can now be deleted.
- ☞ LSR now provides a number of new and changed event types. See Appendix C.
- ☞ For QC purposes, when entering remarks, tab, end-of-line, and double space characters are no longer allowed. Word wrapping has also been enhanced.
- ☞ The LSR GUI no longer uses "FX" for an unknown tornado F-scale magnitude.

Figures

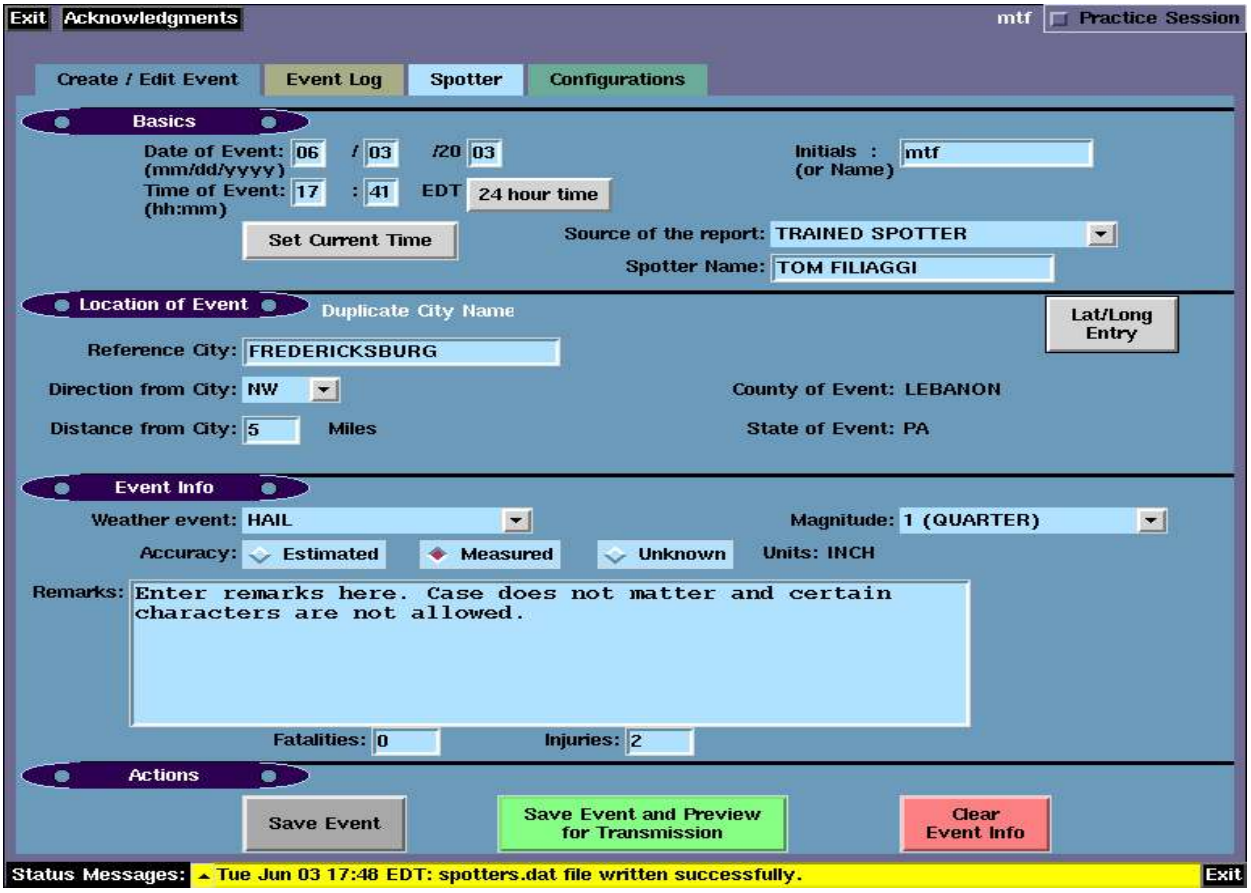

Figure 1 The 'Create / Edit Event' page. This is where the LSR weather event data is entered by the forecaster.

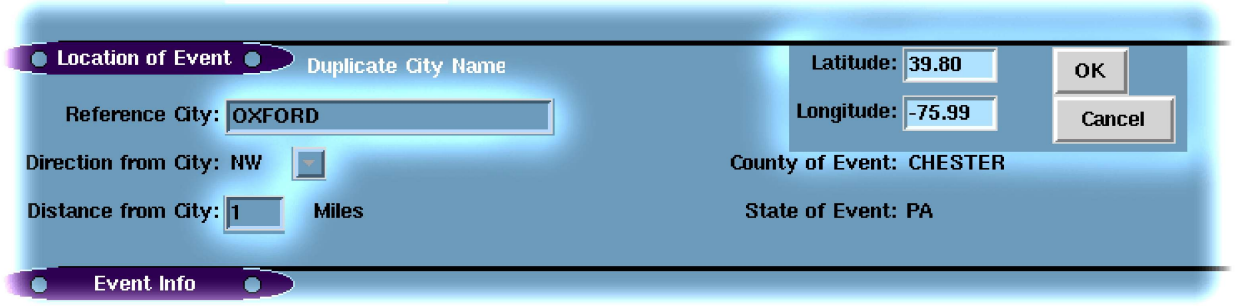

Figure 2 When the Lat/Long entry is activated, the Lat/Long entry widgets appear and the reference city widgets are deactivated.

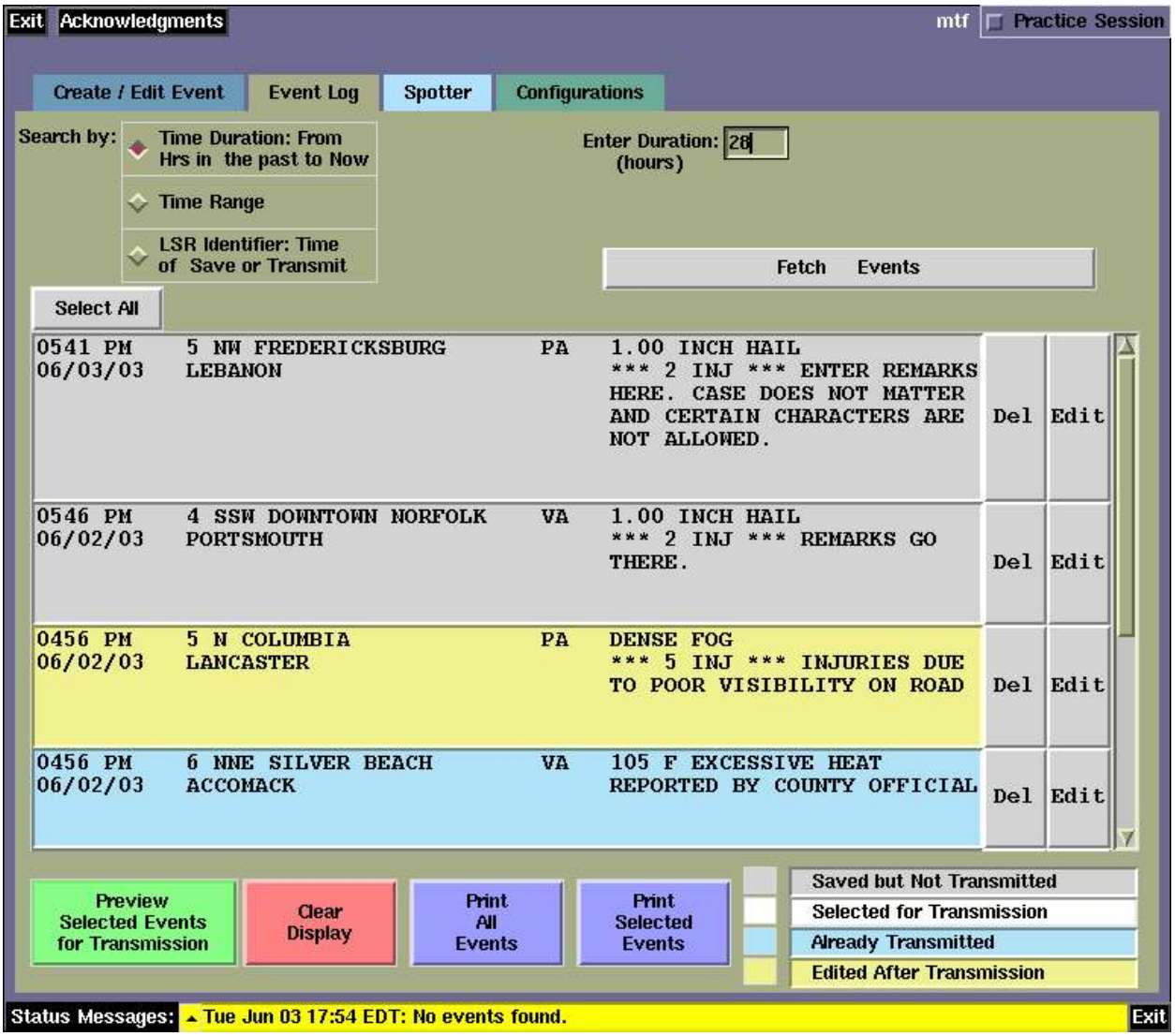

Figure 3 The 'Event Log' page. This is where previously created events can be listed, edited, and transmitted.

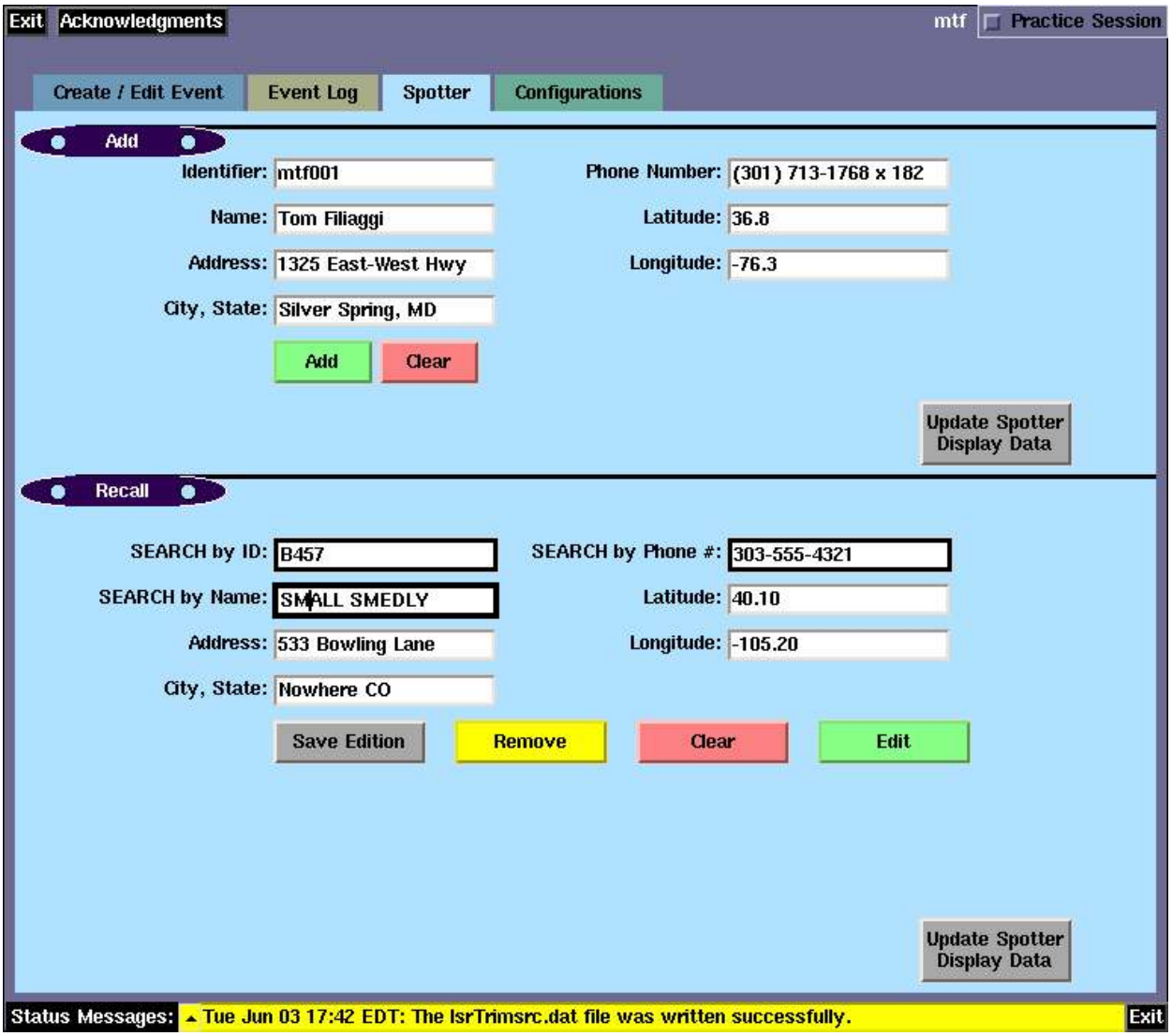

Figure 4 This is the Spotter tab, where spotter records can be added (as shown) or recalled for editing or removal.

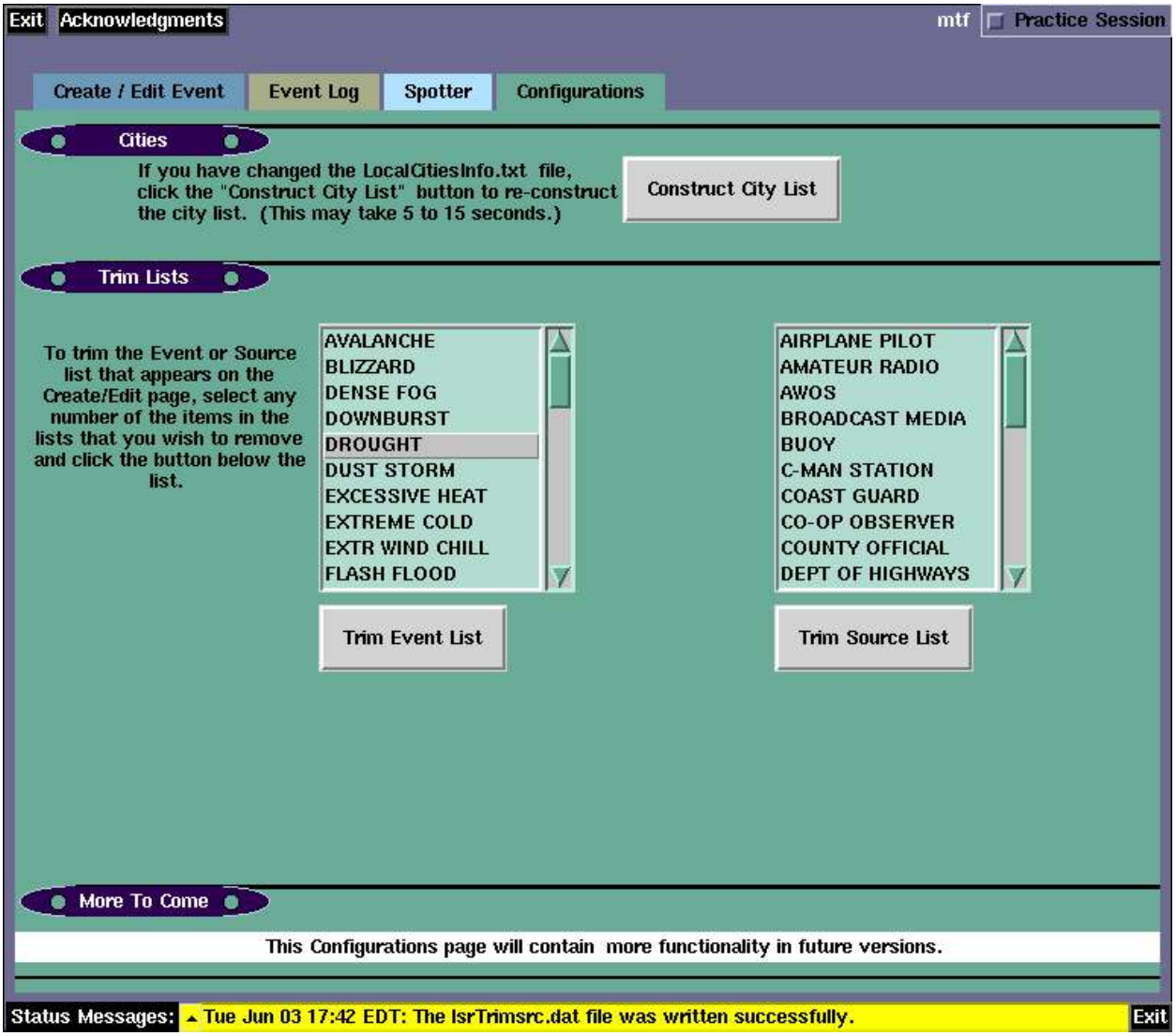

Figure 5 This is the Configuration tab where you can re-construct the city list the LSR GUI uses. More will be added here in future versions of the LSR GUI.

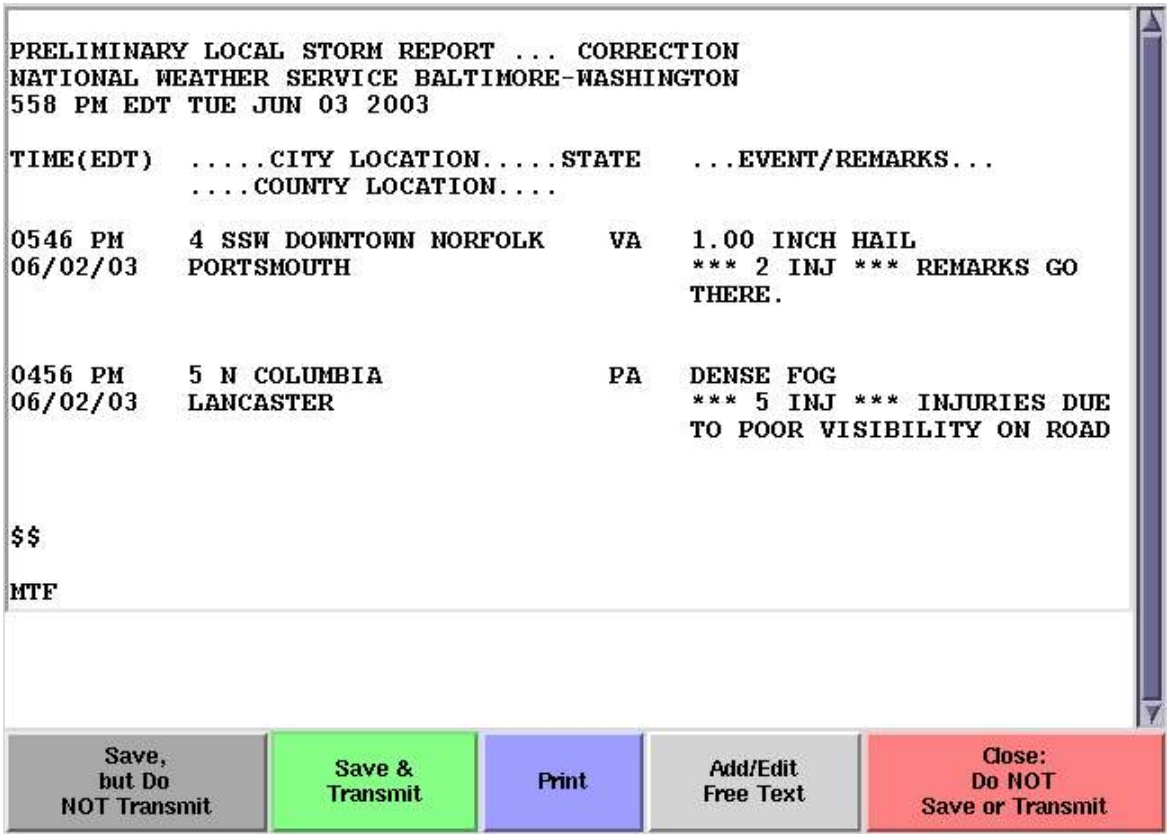

Figure 6 The 'Preview' page. This is where the final inspection of the LSR product occurs and where transmission actually gets executed.

Figure 7 The Status Message log (displayed with the Configuration Page).

Help

You can get a good deal of more detailed info from the LSR GU web page at http://www.nws.noaa.gov/mdl/lsr. To report problems or ask questions concerning the operation of the LSR GUI, please contact Tom Filiaggi at (303) 497-6578 or email at Tom.Filiaggi@noaa.gov or use the awipsinfo list server.

Appendices

Appendix A: Example of new event format: Character position (Limit is 69. The "|" will appear as blank space in format):

```
          1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678
xxx = unused space
```

Current format (WSOM C40):

```
hhmm qM |x|DIST DIR CITY            |ST|x|MAG UNITS EVENT            |
MM/DD/YY|x|COUNTY                   |xxxx|*** # DEAD, # INJ ***      |
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx|REMARKS                      |
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx| . .                  . . |
```

New Format (as of December 16, 2003):

```
hhmm qM|xxx|EVENT          |DIST DIR CITY           |LL.LLd LLL.LLd|x|
MM/DD/YYYY||MAG UNIT    |xx|COUNTY             |ST|x|SOURCE           |
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxx|*** # FATAL, # INJ *** REMARKS                              |
xxxxxxxxxxx| . .                                                 . . |
```

Item	Description	Example	Chars	Length
EVENT	weather event, with preceding "#" character	HAIL, TORNADO, WIND GUST	1:13-27	15
MAG	magnitude value with units	3.0, F4, 50	1:13-24	12
UNIT	units of the magnitude value	INCHES, MPH		
DIST	distance from city	10	1:29-52	24
DIR	direction from city	NW		
CITY	city name (obtained from list)	NECHE		(ala 17)
LL.LLd	latitude to 2 decimals and direction	38.31N	1:54-57	14
LLL.LLd	longitude to 2 decimals and direction	104.92W		
MM/DD/YYYY	date: month / day / year(4 digit)	08/22/2001	2:1-10	10
hhmm qM	time: hour minute with am/pm qualifier and preceding zero if necessary	0109 PM	1:1-7	7
COUNTY	county name	PEMBINA	2:29-47	19
ST	state abbreviation	ND	2:49-50	2
SOURCE	Source of the report	TRAINED SPOTTER	2:54-69	16
FATAL INJ	Number of fatalities and injuries, surrounded by three asterisks, separated by a comma, with spaces in between. This exists at the beginning of the remarks section.	*** 1 FATAL, 2 INJ *** *** 4 INJ ***	4+: 13-69	57 (500 limit)

Appendix B: Available event sources.

AIRPLANE PILOT
AMATEUR RADIO
ASOS
AWOS
BROADCAST MEDIA
BUOY
C-MAN STATION
COAST GUARD
CO-OP OBSERVER
COUNTY OFFICIAL
DEPT OF HIGHWAYS
EMERGENCY MNGR
FIRE DEPT/RESCUE
INSURANCE CO
LAW ENFORCEMENT
MESONET
NEWSPAPER
NWS EMPLOYEE
NWS STORM SURVEY
OFFICIAL NWS OBS
OTHER FEDERAL
PARK/FOREST SRVC
POST OFFICE
PUBLIC
SHIP
STORM CHASER
TRAINED SPOTTER
UNKNOWN
UTILITY COMPANY

Appendix C: Available weather event types.

AVALANCHE
BLIZZARD
DENSE FOG
DOWNBURST
DROUGHT
DUST STORM
EXCESSIVE HEAT
EXTREME COLD
EXTR WIND CHILL
FLASH FLOOD
FLOOD
FREEZE
FREEZING RAIN
FUNNEL CLOUD
HAIL
HEAVY RAIN
HEAVY SLEET
HEAVY SNOW
HIGH ASTR TIDES
HIGH SUST WINDS
HURRICANE
ICE STORM
LIGHTNING
MARINE HAIL
MARINE TSTM WIND
NON-TSTM WND DMG
NON-TSTM WND GST
RIP CURRENTS
SEICHE
SLEET
SNOW
STORM SURGE
TORNADO
TROPICAL STORM
TSTM WND DMG
TSTM WND GST
WATER SPOUT
WILDFIRE